

What is claimed is:

1. A starting system for a vehicle comprising:
a power source switching unit for switching between a low voltage power source and a high voltage power source;
a starter motor for generating a rotational torque to start an engine by the application of voltage switched by the power source switching unit; and
a starting control unit for switching the power source switching unit in accordance with a state of the vehicle.

2. A starting system for a vehicle according to claim 1, wherein the starting system for a vehicle is used for the vehicle mounted with an engine automatic stop and start system which stops the engine while the vehicle is stopped and starts the engine when the vehicle is started, and wherein the power source switching unit is switched to the high voltage power source by the starting control unit when the vehicle is started by the engine automatic stop and start system.

3. A starting system for a vehicle according to claim 2, wherein a control section of the engine automatic stop and start system is mounted on an engine control unit which is provided separately from the starting control unit and sends a signal for a direction signal to automatically stop and start the engine according to a state of the vehicle corresponding to a vehicle speed, a brake, and an accelerator.

4. A starting system for a vehicle according to claim 3, wherein the starting control unit switches the power source switching unit to the high voltage power source and performs a control for passing an electric current through the starter motor when the starting control unit receives an automatic start signal from the engine control unit.

5. A starting system for a vehicle according to claim 1, wherein the power source switching unit is switched to the low voltage power source when a manually operated key switch is set at a starter position to start the engine.

6. A starting system for a vehicle according to claim 1, further comprising a magnet switch for connecting or disconnecting a current passing circuit of the starter motor, wherein a current passing circuit of a coil of the magnet switch includes a unit for suppressing the amount of current passing through the coil.

7. A starting system for a vehicle comprising:

- a power source switching unit for switching between a first voltage source and a second voltage source;
- a starting control unit for switching the power source switching unit in accordance with a state of the vehicle;
- an engine control unit for transmitting a starting signal to the starting control unit; and
- a magnet switch for controlling power from either the

first voltage source or the second voltage source and routing it to a starter motor.

8. The starting system for a vehicle of claim 7 further comprising,

a key switch for switching between a starter terminal and an ON terminal;

a first starter relay for relaying energy from the first voltage source to the magnet switch, thereby energizing the starter motor with energy from the first voltage source when the key switch is switched to the starter terminal;

a second starter relay for relaying energy to the magnet switch, thereby energizing the starter motor with energy from the first voltage source or the second voltage source.

9. The starting system for a vehicle of claim 8, wherein a change-over switch switches the power source for passing current through the starter motor to the low voltage source or the high voltage source while the passage of current through the change-over switch is controlled by the starting control unit.

10. The starting system for a vehicle of claim 7, further comprising,

a common starter relay energized by the starting control unit, the common starter relay also turning on the magnet switch.

11. The starting system for a vehicle of claim 10, further comprising,

a suppression unit for suppressing an amount of current passing through a magnet coil of the magnet switch, wherein the suppression unit controls the rate of contact of the magnet switch.

12. A method of controlling a starting control unit of a vehicle engine starting system, the method including the steps of:

determining whether a key switch is connected to an ON terminal;

determining whether an automatic starting signal is received from an engine control unit of the engine when the key switch is connected to an ON position;

turning a magnet switch to an ON position when the automatic starting signal is received from the engine control unit to begin a passage of current to a starter motor;

turning a second starter relay ON when the automatic starting signal is received from the engine control unit;

determining whether an automatic starting signal is OFF after the second starter relay is turned ON;

turning a second starter relay OFF when an automatic starting signal is OFF; and

turning a magnet switch to an OFF position in order to stop a passage of current through the starter motor.